

**Mayhem to Mindful:  
Improving Medication Administration Safety through  
Action Research**

**Elaine A McCall**

RCompN, MN (Hons), PGCert (Effective Practice) BA (Nurs)

Submitted in total fulfilment of the requirements for the degree of

**Doctor of Nursing**



2017

“It may seem a strange principle to enunciate as the very first requirement in a hospital that it should do the sick no harm.” (Nightingale 1859)

## **CERTIFICATE OF AUTHORSHIP ORIGINALITY**

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of candidate:

Date: 25/5/2017

## ACKNOWLEDGMENTS

I would like to thank the many people who have supported me on my doctoral journey. First and foremost, I would like to thank my supervisors, Professor Valerie Wilson and Doctor Annette Dickinson for their patience and support. I also acknowledge the valued contribution of Professor Jackie Crisp who was involved in the initial few years. I have learnt so much during this extraordinary learning experience from each of your shared expertise and wisdom. Your insight, critical review and guidance has enabled me to accomplish this thesis. You taught me to focus on what is important without compromise but always with compassion. Thank you.

This thesis would not have been possible without the collaboration of the nurse participants who wholeheartedly embraced the opportunity to talk about their medication practice with such openness, honesty and humour and were willing and courageous enough to challenge their practice. You inspire us all to be the best nurse that we can be. Thank you so much.

Heartfelt thanks to my fantastic friends Laura, Heather and Lynda and wonderful Starship colleagues who encouraged and supported me all the way. A special thanks to Claire who provided shelter and nourished both body and mind when I was away from home.

I would like to thank my family for believing in me. Especially, my mother and late father, who have always supported everything I have chosen to do in my professional life, even when it entailed travelling to the other side of the world. I love you all dearly.

I would like to acknowledge the support of several scholarships which enabled me to build my knowledge and skills as I was growing as a researcher; the Starship Foundation Research Scholarship, the University of Technology, Health Services and Practice Research Development Award, and the New Zealand Nurses Organisation, McCutchan Trust Scholarship.

## TABLE OF CONTENTS

CERTIFICATE OF AUTHORSHIP ORIGINALITY .....	i
ACKNOWLEDGMENTS .....	ii
TABLE OF CONTENTS .....	iii
LIST OF FIGURES .....	vi
LIST OF TABLES .....	viii
GLOSSARY OF TERMS .....	ix
ABSTRACT .....	x
CHAPTER 1 INTRODUCTION .....	1
1.1 Purpose of the Research .....	2
1.2 Significance of the Research .....	3
1.3 Background .....	7
1.4 Structure of the Thesis .....	18
1.5 Conclusion .....	19
CHAPTER 2 LITERATURE REVIEW PART ONE: MEDICATION SAFETY .....	21
2.1 Review Method .....	21
2.2 Medication Safety: Challenges for Nursing Practice .....	26
2.3 Medication Safety: Evidence for Practice .....	40
2.4 Limitations of the Methodological Approach to Medication Safety .....	66
2.5 Conclusion .....	69
CHAPTER 3 LITERATURE REVIEW PART TWO: IMPLEMENTING EVIDENCED BASED PRACTICE CHANGE .....	72
3.1 Review Method and Search Strategy .....	72
3.2 Evidence Based Practice .....	73
3.3 Nature of Evidence .....	76

3.4	Models to Support Implementation of Evidence into Practice .....	82
3.5	The Context of Change .....	91
3.6	Conclusion .....	94
CHAPTER 4 METHODOLOGY AND METHOD .....		96
4.1	Conceptual Framework .....	96
4.2	Action Research Method.....	112
4.3	Research Study Design .....	122
4.4	Ethical considerations .....	146
4.5	Conclusion .....	150
CHAPTER 5 FINDINGS: TRANSFORMING MEDICATION MAYHEM.....		151
5.1	Medication Mayhem .....	153
5.2	Workplace Context: Findings from Action Spiral 1 & 2 .....	157
5.3	Workplace Culture: Findings from Action Spiral 1 and 2 .....	166
5.4	Workplace Context and Workplace Culture: Findings from Action Spiral	
3	175	
5.5	Ways of Working: Findings from Action Spiral 1 and 2 .....	182
5.6	Ways of Working: Findings from Action Spiral 3.....	191
5.7	Transformation of Practice.....	200
5.8	Conclusion .....	204
CHAPTER 6 DISCUSSION: MIND FULL to MINDFUL .....		207
6.1	Mindfulness.....	208
6.2	Ways of Working .....	216
6.3	Workplace Context and Culture.....	233
6.4	Interruptions and Distractions .....	241

6.5	Model for Improving the Safety of Medication Administration (MISMA)	247
6.6	Conclusion .....	252
CHAPTER 7 CONCLUSION, LIMITATIONS, IMPLICATIONS AND REFLECTIONS ON THE RESEARCH..... 254		
7.1	Limitations .....	259
7.2	Implications for Nursing Research, Education and Practice.....	262
7.3	Reflection on Research Process .....	267
7.4	Personal Reflection .....	271
7.5	Conclusion .....	275
APPENDIX A LITERATURE SUMMARY TABLES.....		278
APPENDIX B CHARGE NURSE INFORMATION AND CONSENT.....		303
APPENDIX C NURSING STAFF INFORMATION .....		306
APPENDIX D NURSING STAFF CONSENT FORM .....		310
APPENDIX E WARD PROFILE QUESTIONNAIRE.....		312
APPENDIX F STAFF CONTEXT AND CULTURE SURVEY .....		313
APPENDIX G EXAMPLE OF CAI SCORING.....		319
APPENDIX H OBSERVATION OF PRACTICE: TOOL.....		320
APPENDIX I OBSERVATION OF PRACTICE: STAFF INFORMATION.....		321
APPENDIX J VALUES CLARIFICATION TOOL .....		323
APPENDIX K PERMISSION TO USE CWEQ II.....		324
APPENDIX L PERMISSION TO USE CAI.....		325
APPENDIX M NZ HEALTH & DISABILITY ETHICS APPROVAL.....		326
APPENDIX N UTS ETHICS RATIFICATION .....		328
REFERENCES.....		330

## LIST OF FIGURES

Figure 2-1 Flow diagram of article selection process .....	24
Figure 2-2 Level of evidence pyramid .....	25
Figure 4-1 Conceptual Framework .....	97
Figure 4-2 Schematic of action research cycle .....	121
Figure 4-3 Action research journey.....	128
Figure 4-4 Photograph of flip chart data code and theme generation .....	142
Figure 5-1 Transforming medication mayhem; themes and sub themes .....	151
Figure 5-2 Key to data sources.....	152
Figure 5-3 Vignette: the mayhem of medication administration .....	154
Figure 5-4 Workplace Context spiral 1 & 2 sub theme .....	157
Figure 5-5 Context Assessment Index plotted scores .....	158
Figure 5-6 Photograph of “before” medication room .....	162
Figure 5-7 Ward layout .....	163
Figure 5-8 Workplace Culture spiral 1 & 2 sub themes.....	166
Figure 5-9 Nursing team CWEQ II scores .....	168
Figure 5-10 Workplace Context and Workplace Culture final sub themes .....	175
Figure 5-11 Photographs of redesigned medication room .....	178
Figure 5-12 Interruption Free Zone door sign.....	180
Figure 5-13 Ways of Working spiral 1 & 2 sub themes .....	182
Figure 5-14 Reported medication incidents; contributory factors .....	185
Figure 5-15 Ways of Working final sub themes .....	191
Figure 5-16 Ward vision statement .....	193
Figure 5-17 Reported medication incidents by type .....	196
Figure 5-18 Exemplar: Saying NO to Interruptions.....	198



Figure 5-19 Comparison of the impact of reported medication incidents .....	202
Figure 5-20 Comparison of the type of reported medication incidents .....	202
Figure 5-21 Comparison of contributory factors to reported medication incidents....	203
Figure 6-1 Exemplar: Mindful of confirmation bias.....	222
Figure 6-2 Model for Improving the Safety of Medication Administration (MISMA) .....	249
Figure 7-1 Exemplar: Nancy’s near miss.....	255
Figure 7-2 Mindful medication double check.....	276

## **LIST OF TABLES**

Table 3-1 Comparison of Diffusion and Stages of Change Model .....	83
Table 4-1 Medication action group demographics.....	125
Table 4-2 Study data plan .....	130
Table 4-3 Example of observation data code and theme generation .....	144
Table 4-4 Identification of contributory factors to reported medication incident.....	145
Table 5-1 Workplace context: chaotic & disruptive .....	161
Table 5-2 Low scoring culture questions .....	173
Table 5-3 Workplace context and culture interventions .....	176
Table 5-4 Ways of working: habitual, distracted and inconsistent .....	183
Table 5-5 Ways of working interventions.....	192
Table 5-6 Ways of working: Present and focused .....	200
Table 7-1 Example of applying the MISMA in practice.....	265

## GLOSSARY OF TERMS

Adverse event	any unintended harm caused by a medical intervention rather than the patient's underlying condition (Brennan et al. 1991)
Adverse drug event (ADE)	any unintended harm caused by a medicine or lack of an intended medicine (Holdsworth et al. 2003). Includes adverse drug reaction and medication error
Adverse drug reaction (ADR)	any undesirable effect of a medicine during clinical use beyond its anticipated therapeutic effect
Error	the failure of a planned action to be completed as intended (error of execution) or the use of a wrong plan to achieve an aim (error of planning)
Error of commission	doing the wrong thing (ACSQHC 2002)
Error of omission	failing to do the right thing (ACSQHC 2002)
Good catch	a potential adverse drug event which does not reach the patient due to active intervention by someone
Medication delivery process	stages of medication management; prescribing, dispensing, administering, documenting and monitoring
Medication error	a failure in the medication process that leads to, or has the potential to lead to, harm to the patient, and includes acts of omission or commission (ACSQHC 2002)
Medication safety	freedom from unintended injury during the course of medication use  activities to avoid, prevent, or correct adverse drug events which may result from the use of medications (AHA, HRET & ISMP 2002)
Near miss	a potential adverse drug event which does not reach the patient due to chance
Potential adverse drug event (ADE)	occurrence of a medication error that could result in an adverse drug event but does not because of intervention or chance (Institute for Healthcare Improvement)
Root cause analysis (RCA)	a retrospective review of a patient safety incident to identify what happened and how and why

## **ABSTRACT**

Keeping patients safe is a fundamental component of quality nursing care. Nevertheless medication delivery within a busy clinical environment continues to challenge patient safety and wellbeing. Nurses' central role in medication administration to inpatients puts them in the ideal position to safeguard patients from prescribing, dispensing and administration errors (Vaismoradi et al. 2016). However, the ward context can inadvertently support work practices that compromise patient safety (Balka, Kahnamoui & Nutland 2007), while the seemingly routine nature of medication administration can decrease nurses' attentiveness to the medication administration process (Dickinson et al. 2010).

An action research study, informed by theoretical constructs from critical social theory (Fay 1987; Habermas 1972; 1984), emancipatory practice development (Manley, McCormack & Wilson 2008) and the transtheoretical model of change (Prochaska, Prochaska & Levesque 2001), enabled frontline nurses to work together to understand and improve the safety of medication administration within one ward in a tertiary children's hospital in New Zealand. Data were collected from participants and the researcher throughout the research journey using multiple methods including; questionnaire, interview, observation, review of reported medication incident data, meeting notes and reflective notes. Qualitative data were subjected to iterative thematic analysis and quantitative data were analysed according to the data instrument instructions.

An exploration of the clinical context and practice demonstrated that nurses' medication administration was mayhem; a habitual, distracted and inconsistent process undertaken

in a chaotic and disruptive environment. For nurses, there was a tension between striving to adhere to best practice in the face of many contextual barriers resulting in inconsistency in the safety of medication administration practice. Mindfulness allowed nurses to make sense of the mayhem of practice. It enabled them to see the mayhem, question practice, and develop safer ways of working to move beyond the MAYHEM to ensure MINDFUL medication administration. The Model for Improving the Safety of Medication Administration (MISMA) was developed to illustrate how becoming mindful can be used as a strategy to improve the safety of medication administration. The model can be used to guide nurses to critically analyse their own and team practice and develop, implement and evaluate evidence based improvements in practice.

